AMENDMENTS TO THE CLAIMS

1. (Original) A mobile station apparatus for retransmitting data in a reverse direction upon receiving a retransmission request for a data transmitted from a base station after transmitting the data in the reverse direction in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising:

a radio frequency (RF) receiver for receiving a retransmission control signal for the reverse data over a forward link; and

a controller for determining whether to retransmit the reverse data using the retransmission control signal received from the RF receiver, and controlling transmission of retransmission data using a traffic-to-pilot power ratio (TPR) included in the retransmission control signal.

2. (Original) The mobile station apparatus of claim 1, further comprising a TPR controller for controlling a gain of the reverse data depending on the TPR output from the controller.

3. (Original) The mobile station apparatus of claim 1, wherein the controller determines a TPR value to be used during retransmission as 1/2 of an old TPR value, when an erasure occurs in the received retransmission control signal.

4. (Original) The mobile station apparatus of claim 1, wherein the controller sets a TPR value to be used during retransmission to a TPR value received over a forward channel, when no erasure occurs in the received retransmission control signal.

5. (Original) The mobile station apparatus of claim 1, wherein the radio frequency (RF) receiver comprises:

an antenna for receiving a radio frequency (RF) signal including a retransmission control signal from a base station;

a baseband converter for downconverting the RF signal to a baseband signal; and

an analog-to-digital converter for converting the baseband signal to a digital signal.

6. (Original) A mobile station apparatus for retransmitting data in a reverse direction upon receiving a retransmission request for a data received from a base station after transmitting the data in the reverse direction in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising:

a radio frequency (RF) receiver for receiving a retransmission control message for the reverse data over a forward link;

a controller for outputting a control signal including a number of retransmission data symbols depending on the retransmission control message received from the RF receiver; and

a channel encoder for channel-encoding the reverse data, and outputting the encoded data according to the control signal.

7. (Original) The mobile station apparatus of claim 1, wherein the radio frequency (RF) receiver comprises:

an antenna for receiving a radio frequency (RF) signal including a retransmission control signal from a base station;

a baseband converter for downconverting the RF signal to a baseband signal; and

an analog-to-digital converter for converting the baseband signal to a digital signal.

8. (Original) The mobile station apparatus of claim 6, wherein during retransmission, the controller extracts a symbol position value of output data from the retransmission control message included in the control signal.

9. (Original) The mobile station apparatus of claim 6, wherein the controller determines the number of retransmission symbols as 1/2 of a number of initial transmission symbols when the retransmission control message indicates an erasure.

10. (Original) The mobile station apparatus of claim 6, wherein the controller determines the number of retransmission symbols as the number of symbols indicated by the control information when the retransmission control message does not indicate an erasure.

11. (Original) The mobile station apparatus of claim 6, wherein the controller determines a position value of the reverse retransmission data using a value included in the control information.

12. (Original) The mobile station apparatus of claim 6, wherein the controller continuously determines a position value of the retransmission code symbols beginning at a symbol in a particular position among symbols and transmits the determined position information of the symbols over a given reverse channel.

13.(Currently Amended) A base station apparatus for transmitting a retransmission request message for received data in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising:

an Eb/Nt (ratio of energy to interference per bit) calculator for measuring Eb/Nt of data received

an error detection signal generator for checking whether there is an error in the received data and generating an error detection signal according to the checking result;

a controller for determining a traffic-to-pilot power ratio (TPR) value during retransmission using information received from the Eb/Nt calculator upon receiving ~~a negative acknowledgement (NACK)~~ the error detection signal for the received data from the error detection signal generator; and

a transmitter for forming forward control information using the TPR value determined by the controller, and transmitting the forward control information.

14. (Original) The base station apparatus of claim 13, wherein the controller determines the TPR value to be used during retransmission as 1/4 of an old TPR value when a value

determined by dividing a total Eb/Nt value by a target Eb/Nt is at least equal to 1.

15. (Original) The base station apparatus of claim 13, wherein the controller determines the TPR value to be used during retransmission as 1/2 of an old TPR value when a value determined by dividing a total Eb/Nt value by a target Eb/Nt is smaller than 1 and at least equal to 0.5.

16. (Original) The base station apparatus of claim 13, wherein the controller determines the TPR value to be used during retransmission to be equal to an old TPR value when a value determined by dividing a total Eb/Nt value by a target Eb/Nt is smaller than 0.5.

17. (Currently Amended) A base station apparatus for transmitting a retransmission request message for received data in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising:

an Eb/Nt (ratio of energy to interference per bit) calculator for measuring Eb/Nt of the received data;

an error detection signal generator for checking whether the received data has an error and generating an error detection signal according to the checking result;

a controller for determining a number of retransmission code symbols using information received from the Eb/Nt calculator upon receiving ~~a negative acknowledgement (NACK)~~ the error detection signal for the received data from the error detection signal generator; and

a transmitter for forming forward control information using the number of retransmission code symbols determined by the controller, and transmitting the forward control information .

18. (Original) The base station apparatus of claim 17, wherein the controller outputs position information of retransmission code symbols to be requested for retransmission to the transmitter including the number of the retransmission code symbols when an error has occurred in the received data.

19. (Original) The base station apparatus of claim 17, wherein the controller determines the number of retransmission code symbols as 1/4 of code symbols transmitted at an initial transmission when a value determined by dividing a total Eb/Nt value by a target Eb/Nt value is at least equal to 1.

20. (Original) The base station apparatus of claim 17, wherein the controller determines the number of retransmission code symbols as 1/2 of code symbols transmitted at an initial transmission when a value determined by dividing a total Eb/Nt value by a target Eb/Nt value is at least equal 0.5 and smaller than 1.

21. (Original) The base station apparatus of claim 17, wherein the controller determines the number of retransmission code symbols to be equal to a number of code symbols transmitted at an initial transmission when a value determined by dividing a total Eb/Nt value by a target Eb/Nt value is smaller than 0.5.

22. (Original) A method for retransmitting data in a reverse direction upon receiving a retransmission request from a bases station in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising the steps of:

(a) decoding a received signal , and determining whether the received signal includes the retransmission request; and

(b) if the received signal includes the retransmission request, controlling a traffic-to-pilot power ratio (TPR) according to retransmission control information included in the received signal, and then performing retransmission through a reverse channel.

23. (Original) The method of claim 22, wherein the TPR value to be used during retransmission is 1/2 of an old TPR value when an erasure has occurred in the retransmission control information.

24. (Original) The method of claim 22, wherein the TPR value to be used during

retransmission is a TPR value received over a forward channel when no erasure has occurred in the retransmission control information.

25. (Original) The method of claim 22, further comprising steps of:

receiving a radio frequency (RF) signal including a retransmission control signal from a base station;

downconverting the RF signal to a baseband signal; and

converting the baseband signal to a digital signal.

26. (Original) A method for retransmitting data in a reverse direction by a mobile station upon receiving a retransmission request from a base station in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising the steps of:

(a) decoding a received control information , and determining whether the control information includes the retransmission request;

(b) if the control information includes the retransmission request, generating as many retransmission data symbols as a number of symbols, whose information is included in the control information; and

(c) retransmitting the generated retransmission data symbols over a reverse channel.

27. (Original) The method of claim 26, further comprising the step of controlling a gain of the generated retransmission data symbols before retransmitting the gain-controlled data symbols over the reverse channel.

28. (Original) The method of claim 26, wherein the step (b) comprises the step of channel-encoding the data symbols, and transmitting symbols other than previously transmitted code symbols among the channel-encoded symbols.

29. (Original) The method of claim 26, wherein when an erasure has occurred in the received control information, 1/2 of symbols transmitted during initial transmission are

determined as retransmission data symbols.

30. (Original) The method of claim 26, wherein when no erasure has occurred in the received control information, as many symbols as the number indicated by the control information are determined as retransmission data symbols.

31. (Original) The method of claim 22, further comprising steps of:

receiving a radio frequency (RF) signal including a retransmission control signal from a base station;

downconverting the RF signal to a baseband signal; and

converting the baseband signal to a digital signal.

32. (Original) A method for transmitting a retransmission request message for received data in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising the steps of:

(a) measuring Eb/Nt (ratio of energy to interference per bit) of reverse data when an error has occurred in the received data ;

(b) determining a traffic-to-pilot power ratio (TPR) required during retransmission using a total Eb/Nt value of the received data; and

(c) forming control information using the TPR value required during retransmission, and transmitting the control information over a given forward channel.

33. (Original) The method of claim 32, wherein the step (b) comprises the step of comparing the total Eb/Nt value of the received data with a target Eb/Nt value.

34. (Original) The method of claim 33, wherein the target Eb/Nt value is determined by a set value during outer loop power control.

35. (Original) The method of claim 32, wherein when a value determined by dividing the

total Eb/Nt value by a target Eb/Nt value is at least equal to 1, the TPR value to be used during retransmission is determined as 1/4 of an old TPR value.

36. (Original) The method of claim 32, wherein when a value determined by dividing the total Eb/Nt value by a target Eb/Nt value is at least equal to 0.5 and smaller than 1, the TPR value to be used during retransmission is determined as 1/2 of an old TPR value.

37. (Original) The method of claim 32, wherein when a value determined by dividing the total Eb/Nt value by a target Eb/Nt value is smaller than 0.5, the TPR value to be used during retransmission is determined to be equal to an old TPR value.

38. (Original) A method for transmitting a retransmission request message for received data by a base station in a mobile communication system supporting hybrid automatic retransmission request (HARQ), comprising the steps of:

determining whether the data received in the reverse direction has an error;

determining a number of code symbols required during retransmission by comparing an Eb/Nt value of the data transmitted from a mobile station with a target Eb/Nt value; and

forming control information using information on the number of retransmission code symbols, and transmitting the control information .

39. (Original) The method of claim 38, wherein the target Eb/Nt value for a channel is a target Eb/Nt value for a channel during outer loop power control.

40. (Original) The method of claim 38, wherein when a value determined by dividing the total Eb/Nt value by the target Eb/Nt value is at least equal to 1, the number of retransmission code symbols is determined as 1/4 of code symbols transmitted during an initial transmission.

41. (Original) The method of claim 38, wherein when a value determined by dividing the total Eb/Nt value by the target Eb/Nt value is at least equal to 0.5 and smaller than 1, the number

of retransmission code symbols is determined as 1/2 of code symbols transmitted during an initial transmission.

42. (Original) The method of claim 38, wherein when a value determined by dividing the total Eb/Nt value by the target Eb/Nt value is smaller than 0.5, the number of retransmission code symbols is determined to be equal to a number of code symbols transmitted during an initial transmission.